Tab B
Onc-2555

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On the matter of survivability of the operational aircraft, it is to be noted that discussions were held on this topic by the IG personnel and [redacted] and Mr. C. L. Johnson. [redacted] has undoubtedly devoted some thought to this topic; however, it is not within his assigned responsibilities to conduct any investigations in this area above and beyond the A. R. vehicle configuration. Mr. Johnson's organization is conducting a survivability study. The results of that study are not yet available.

During the formative stages of this project, considerable attention was given to the matter of survivability, including detection and tracking by ground and airborne radars and infra red sensing systems as well as sonic boom effects. Enemy developments in these fields as well as in manned interceptors and surface to air missiles were examined carefully and final technical judgment was made by a group of five eminent scientists in this country.

If it is agreed that this particular specialized topic should become a matter for discussion by personnel of the IG Staff, such discussions should be held with Headquarters personnel who are aware of the background work and current investigations relating to this matter rather than by personnel, contractor or otherwise, in the field. Such discussions with personnel at this Headquarters have not taken place. It would be possible, on the basis of information now available, to prepare a chart of the qualitative type as described by Mr. Kirkpatrick, if this is desired.

Finally, it is not recommended that the request for a survivability study by the AFSC Foreign Technology Division be resubmitted to Mr. Bissell for approval at the present time. Rather, the Lockheed study should be evaluated when available, and additional work by AFSC or some other organization such as [redacted] be re-opened at that time.

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VULNERABILITY ASSESSMENT

Detection and tracking by ground radar	3½ years intensive study and testing to reduce radar response at all frequencies used by Soviets. Continued efforts to determine characteristics and deployment of Soviet radars, particularly new developments. Repeated analyses of probabilities of detection and tracking. Further simulations, ground and flight tests being planned.
Detection and tracking by I. R.	Ground network of I. R. stations not operationally effective against high altitude targets due to atmospheric absorption. Airborne I. R. net requires enormous number of aircraft for full effectiveness. No indications of Soviet developments in this line. Fighter launched air-to-air missile with I. R. homer is most serious threat. Feasibility of a fuel additive to jam an I. R. homer is being explored with [redacted] 25X1A5a2 [redacted] tail attacks. Beam and head on attacks are difficult to impossible with present types of missiles at these speeds. [redacted] of [redacted] is consultant on I. R. 25X1A5a2 25X1A5a2 25X1A5a2
Detection by sonic boom	Very sketchy data available. Three studies made by three different contractors, one pessimistic, two optimistic. Two other theoretical studies extrapolated to operational conditions. Atmospheric attenuation expected to render this effect sporadic. Detection possible only after the fact, tracking not possible in real time. Use of Soviet high speed flight corridors should add to confusion.

Vulnerability to mechanical malfunction	Very careful attention to safety of flight items required of all contractors, extensive service flight tests will be made before commitment to operations. All critical functions are made redundant for fail-safe reasons, engine ignition system will allow restart at high altitude. Loss of one engine still permits escape at maximum speed. Missile count-down procedure to be used for pre-flight check-out.
Vulnerability by defection	Extensive selection tests used and elaborate schooling and training instituted for flight personnel. Non-optional destruct system being studied.
Vulnerability to fighters and SAM's	Except for I. R. homing missiles discussed above, successful attacks by aircraft and SAM's are dependent on accurate ground radar tracking. Unless A. R. efforts fail, aircraft and SAM attacks not likely.